

Operation of invention

Air supply 86 can be turned on before or after oil is added to the diffuser well. The glass diffuser 82 (Fig.18) should be in place prior to starting air flow. This will prevent liquid or oil from blasting out onto the table or other areas.

295 Once oil contacts the bottom parameter of cap 62 (Fig. 6) it will begin pulling oil vertically by way of capillary through jet slot 36 and between the Teflon rod (Fig.16) and inner cap diameter 63 (Fig. 7). Capillary action will move the oil with or without air flowing through the jet. Oil or liquid may be pulled as high as capillary break 40 (Fig.12). If oil does pass between ball radius 41 and inside radius 65 without air flowing through the jet orifice 42, then the jet well 84 (Fig.18) is too deep and/ or the oil level 83 is too high. With a properly designed jet well this should never happen. The capillary break 40 is designed to stop the flow of liquid from getting into the air supply line. The only exception to this rule would be the un-intended use of a vacuum pulling or air flowing in the reverse direction of the air supply channel 86 (Fig.18). Under normal and intended use, this has never been a problem. Even with the jet well full of oil and the air supply 305 turned off during operation, the oil will pull away from jet orifice 42 and move down the jet ball radius 41 towards the capillary break 40.

Oil cannot, under normal circumstances, be pulled up around jet ball 41 and exit the cap hole 66 without assistance of the Ventura action (vacuum) created by the air velocity 86 flowing through the jet orifice 42. A low pressure area is created between the top of the jet ball 44 and the inner cap radius 65 as air exits the hole in the top of the cap 66 & 67. Oil is also drawn out with the air and the net result is an increased availability of air molecules mixing with oil molecules. These molecules or particles are carried into the glass diffuser tube 82. The larger particles fall back into the jet well. The majority of oil particles are collected onto the inner surfaces of the glass diffuser and returned back to the jet well 84. (see design patent application for glass 315 diffusers). Typically the smaller, airborne molecules are carried out of the top of the glass diffuser 82. A visibly detectable mist or fume usually comes out the top of the glass diffuser. Sometimes it has the appearance of a smoke stream, some times it is not visible. The rate of atomization depends on the viscosity and properties of the liquid. Sometimes it is easier to tell if the diffuser is atomizing by smelling the top of the glass diffuser or watching the oil come out of the cap hole 66 320 & 67.